

Researchers review use of MRI to identify brain cancer biomarkers

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Researchers from the School of Biomedical Engineering & Imaging Sciences (BMEIS) have published a [systematic review](#) in *Neuro-Oncology Advances* exploring the use of MRI imaging techniques to identify non-invasive biomarkers in brain cancer.

These scan biomarkers could then be useful in indicating how well a patient might respond to personalized immunotherapy treatments.

Brain cancers are provisionally diagnosed with an MRI scan, and then a complete diagnosis is made with a tumor sample obtained following subsequent surgery.

Successfully identifying particular biomarkers from [brain cancer](#) before surgery has the potential to allow immunotherapy treatments early in the patient pathway. In so doing, the early personalization of treatment options might improve care for patients.

In recent years immunotherapy has shown potential to personalize treatment for several different types of cancer including glioblastoma, one of the deadliest brain cancers in adults.

The review gives an insight for future work in this field to develop more robust and reproducible biomarkers.

"We have investigated the potential of using imaging techniques to discover biomarkers in glioblastoma that could predict a patient's response to [immunotherapy](#), aiming to tailor treatments more precisely. However, our findings highlight the need for more extensive, validated research to overcome challenges in accuracy and broad applicability of these biomarkers," says Dr. Prajwal Ghimire, senior neurosurgical registrar (KCH) and Ph.D. candidate, School of Biomedical Engineering

& Imaging Sciences.

"Our research suggests that special brain scan markers could one day help doctors customize treatment plans for brain cancer patients, potentially making treatments more effective. However, we're still early in our journey, needing more studies to truly understand how to use these markers effectively and ensure they work for everyone," says Dr. Thomas Booth, reader in neuroimaging, School of Biomedical Engineering & Imaging Sciences.

More information: Ghimire Prajwal et al, Radiogenomic biomarkers for immunotherapy in glioblastoma: a systematic review of magnetic resonance imaging studies, *Neuro-Oncology Advances* (2024). [DOI: 10.1093/oaajnl/vdae055](https://doi.org/10.1093/oaajnl/vdae055)

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